

WHAT IS CLAIMED IS:

1. An apparatus of ring-back constriction, coupled to a transmission line, for constricting a ring-back effect, the apparatus comprising:

a comparator, coupled to the transmission line, for comparing the line signal with a reference voltage, and accordingly outputting a comparison signal;

a termination controller, coupled to the comparator, for outputting a termination control signal according to the comparison signal;

a termination variable resistor, coupled to a termination voltage and the transmission line, the resistance of the termination variable resistor being adjusted according to the termination control signal for providing a voltage to the transmission line;

a constriction controller, coupled to the comparator, for outputting a constriction signal; and

a constriction variable resistor, coupled to a constriction voltage and the transmission line, the resistance of the constriction variable resistor being adjusted according to the constriction signal.

2. The apparatus according to claim 1, wherein, when the line signal is in high level, the resistance of the termination variable resistor is of a low value; and when the line signal transits from the high level to a level lower than the reference voltage, the

comparison signal transits to low level, and then the termination controller outputs the termination control signal according to the comparison signal to change the resistance of the termination variable resistor from low value to high value.

3. The apparatus according to claim 1, wherein, when the comparison signal
5 transits from high level to low level, the resistance of the termination variable resistor begins to increase, and the resistance reaches a high value after a transition period.

4. The apparatus according to claim 1, wherein, when the line signal is at high
level, the resistance of the constriction variable resistor is of a high value; and when the
line signal transits from the high level to a level lower than the reference voltage, the
comparison signal transits to low level accordingly, then the constriction controller
10 outputs the constriction signal according to the comparison signal to adjust the
resistance of the constriction variable resistor to a low value, and after a delay period,
the resistance of the constriction variable resistor transits from low value to high value.

5. The apparatus according to claim 4, wherein, when the comparison signal
15 transits from low level to high level, the resistance of the constriction variable resistor
transits from high value to low value, and after the delay period, the resistance of the
constriction variable resistor begins to rise, and reaches high value after a transition
period.

6. The apparatus according to claim 1, wherein, the termination controller
20 comprises a weak transistor and the weak transistor takes a transition period to change
the resistance of the termination variable resistor from low value to high value.

7. The apparatus according to claim 6, wherein the weak transistor is a PMOS transistor.

8. The apparatus according to claim 1, wherein the constriction controller comprises a weak transistor and the weak transistor takes a transition period to change the resistance of the constriction variable resistor from low value to high value.

9. The apparatus according to claim 8, wherein the weak transistor is a PMOS transistor.

10. The apparatus according to claim 1, wherein the termination variable resistor comprises a PMOS transistor.

11. The apparatus according to claim 1, wherein the constriction variable resistor comprises a PMOS transistor.

12. The apparatus according to claim 1, wherein the reference voltage is 1 volt.

13. The apparatus according to claim 1, wherein the termination voltage is 1.5 volt.

14. The apparatus according to claim 1, wherein the constriction voltage is higher than the termination voltage.

15. The apparatus according to claim 1, wherein the range of the constriction voltage is from 2.5 volt to 2.6 volt.

16. The apparatus according to claim 1, wherein the transmission line is in a
GTL+ (Gunning Transistor Logic Plus) bus.

* * * * *

20200314 10:30:00